FIFTH ANNUAL REPORT

OF THE

MEDICAL OFFICER OF HEALTH

TO THE

COMBINED RURAL AND THE URBAN

SANITARY AUTHORITIES

OF THE

CITY AND COUNTY OF HEREFORD.

1878.

By H. VAVASOUR SANDFORD, M.D., &c.

HEREFORD
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TO THE URBAN SANITARY AUTHORITY OF THE CITY OF HEREFORD AND THE COMBINED RURAL SANITARY AUTHORITIES OF THE SAME COUNTY.

December 31, 1878.

Mr. Mayor and Gentlemen,

My Fifth Annual Report, which I now present to you, will, I feel assured, give pleasure to all who may read it, and by comparing the facts herein with my former ones, you will perceive that much that was objectionable and complained of by me as injurious to public health in this county has been remedied or is in course of being so. The most important of all, and one that was felt to be almost insurmountable both by your Sanitary Authorities and myself, that of a Supply of Pure Water in Rural Districts has, I am happy to say, been met by the passing of an Act of Parliament which comes in operation on March 25th, 1879, being cited as the Public Health (Water) Act, 1878. In this Act will be found ample powers for you to enforce the supply of one of the greatest means conducive to public health; indeed, without it every living being in your respective parishes may be said to be in danger of losing their lives. In order that your several Sanitary Authorities and the public may thoroughly understand this Act, I now copy some of the most important clauses therein.

1. This Act may be cited as the Public Health (Water) Act, 1878, and shall be construed as one with the Public Health Act, 1875.

2. This Act shall come into operation on the twenty-fifth day of March, one thousand eight hundred and seventy-nine, which day is in this Act referred to as the commencement of this Act.

3. It shall be the duty of every Rural Sanitary Authority, regard being had to the provisions in this Act contained, to see that every occupied dwelling-house within their district has within a reasonable distance an available supply of wholesome water sufficient for the consumption and use for domestic purposes of the inmates of the house.

Where it appears to a Rural Sanitary Authority, on the report of their Inspector of Nuisances, or their Medical Officer of Health, that any occupied dwelling-house within their district has not such supply within a reasonable distance, and the Authority are of opinion that such supply can be provided at a reasonable cost not exceeding a capital sum, the interest on which at the rate of five per centum per annum would amount to twopence per week, or at such other cost not exceeding a capital sum, the interest on which at the rate of five per centum per annum would amount to threepence per week, as the Local Government Board may on the application of the Local Authority determine under all the circumstances of the case to be reasonable, and that the expense of providing the supply ought to be paid by the owner or defrayed as private improvement expenses, proceedings may be taken as follows:

(1.) The Authority may serve on the owner of the house a notice requiring him, within a time specified in the notice and not exceeding six months from the date of the service thereof, to provide such supply, and to do all such works as may be necessary for that purpose.

(2.) If at the expiration of the time so specified the notice is not complied with, the Authority may serve on the owner a second notice, informing him that if the requirements of the first notice are not complied with within one month from the date of the service of the second notice, the Authority will themselves provide such supply, and that the expense of providing the supply will in that case be payable by the owner or as a private improvement expense.

(3.) If at the expiration of one month from the date of the service of the second notice the requirements of the first notice are not complied with, the Authority may, subject as in this Act is mentioned, themselves provide the supply, and for that purpose they may enter upon the premises and execute all such works as appear to them necessary for obtaining a supply of water for the house, and for the purposes of such entry sections 102 and 103 of the Public Health Act, 1875, shall apply until the works are completed, in the same manner as if an order of a court of summary jurisdiction had been made for the abatement of a nuisance on the premises, and that order had not been complied with.

(4.) Any expenses incurred by the Authority in providing such supply and doing such works may, when the supply has been provided, be recovered in a summary manner from the owner of the house, or may, at the option of the Authority, be declared, by their order, to be private improvement expenses.

(5.) Where the owners of two or more houses have failed to comply with the requirements of the notices served on them under this section, and the Authority might, under this Act, execute the necessary works for providing a water supply for each house, the Authority may, if it appears to them desirable, and no greater expense would be occasioned thereby, execute works for the joint supply of water to those houses, and apportion the expenses as they deem just.

The Authority may, on cause being shown to their satisfaction why the requirements of a notice served by them under this section should not be complied with, withdraw the notice or modify the requirements thereof.

Provided that nothing in this section contained shall be deemed to relieve the Authority from the duty imposed upon them by the Public Health Act, 1875, of providing their district or any contributory place or part of a contributory place therein with a supply of water in cases where danger arises to the health of the inhabitants from the insufficiency or unwholesomeness of the existing supply, and a general scheme of supply is required, and such supply can be got at a reasonable cost.

4. Where an owner of a house has been required by the notice of a Rural Sanitary Authority to provide a supply of water for his house, and objects to such requirement on any of the following grounds: that is to say,

(1.) That the supply is not required; or,

(2.) That the time limited by the notice for providing the supply is insufficient; or,

(3.) That it is impracticable to provide the supply at a reasonable cost; or,

(4.) That the Authority ought themselves to provide a supply of water for the district or contributory place in which the house is situate, or to render the existing supply of water wholesome; or,

(5.) That the whole or part of the expense of providing the supply, or of rendering the existing supply wholesome, ought to be a charge on the district or contributory place;

he may, within twenty-one days after service on him of the second notice, address a memorial to the Authority, stating his objections, and in that case it shall not be lawful for the Authority to proceed with the execution of the works which they might otherwise execute under this Act until they have been authorised to execute the same by a court of summary jurisdiction or by the Local Government Board in manner hereinafter provided.

If the objections stated in the memorial do not include either the fourth or fifth of the above-mentioned grounds, the Authority may apply to a court of summary jurisdiction for an order authorising them to proceed with the works, and thereupon the court shall summon the owner, and, if satisfied on hearing the case that the objections are not well founded, shall make an order authorising the Authority to proceed with the works in the event of their not being executed by the owner within a time limited by the order.

If the objections stated in the memorial are or include the fourth and fifth of the above-mentioned grounds, or either of them, the Authority shall forward a copy of the memorial to the Local Government Board, who may either cancel the requirement of the Authority, or confirm the same, with or without modifications.

If the Local Government Board confirm the requirement they shall issue an order authorising the Authority, subject to such modifications, if any, as they prescribe, to execute the works in the event of such works not being executed by the owner within a time limited by the order.

Any such order may, if the Local Government Board think it equitable so to do, apportion the expense of providing the supply between the owner of the house and the Authority of the district comprising the contributory place in which the house is situate, or between the owner and any other person or persons.

If the Local Government Board cancel the requirement on the grounds that the Authority ought themselves to provide a supply of water for the district or contributory place in which the house is situate, or to render the existing supply wholesome, the memorial shall be deemed to have been a complaint of default made to the Local Government Board against the Authority under the 299th section of the Public Health Act, 1875.

5. Where the expenses of providing a joint supply of water for two or more houses are apportioned under this Act by a Rural Sanitary Authority among the owners of the several houses, notice of such apportionment shall be forthwith given to each of such owners, and if any owner objects to the apportionment as unjust, he may, within twenty-one days after service on him of notice thereof, apply to a justice, and thereupon the justice may summon the Authority, and also the other owners, to show cause before a court of summary jurisdiction why the apportionment should not be varied, and the court may either dismiss the application or make such order varying the apportionment as to the court may appear reasonable.

6. It shall not be lawful in any rural district for the owner of any dwelling house which may be erected after the date of the commencement of this Act, or of any dwelling-house which after that date may be pulled down to or below the ground floor and rebuilt, to occupy the same, or cause or permit

the same to be occupied, unless and until he has obtained from the Sanitary Authority of the district a certificate that there is provided, within a reasonable distance of the house, such an available supply of wholesome water as may appear to such Authority, on the report of their Inspector of Nuisances or of their Medical Officer of Health, to be sufficient for the consumption and use for domestic purposes of the inmates of the house.

If the Sanitary Authority refuse to grant such certificate, the owner may apply to a court of summary jurisdiction for an order authorising the occupation of the house notwithstanding the refusal of the certificate, and thereupon the court shall summon the Authority, and if the court, after hearing the case, is of opinion that the certificate ought to have been granted, the court may make an order authorising the occupation of the house.

Any owner who occcupies a house or causes or permits it to be occupied in contravention of this section shall be liable on conviction by a court of summary jurisdiction to a penalty not exceeding ten pounds.

7. It shall be the duty of every Rural Sanitary Authority from time to time to take such steps as may be necessary to ascertain the condition of the water supply within their district, and the authority may pay all reasonable costs and expenses incurred by them for the purpose of taking such steps. The authority, or any of their officers, or any person duly authorised in writing for that purpose by the authority, if they or he have or has reasonable ground for believing that any occupied dwelling-house within the district is without a proper supply of wholesome water, sufficient for the consumption and use for domestic purposes of the inmates of such house, shall be admitted into the premises for which such supply is required or from which the water supply may be derived for the purpose of ascertaining whether or not such house has such a supply within a reasonable distance; and for tho purposes of any such admission sections 102 and 103 of the Public Health Act, 1875, shall apply in the same manner as if such admission were necessary for the purpose of examining as to the existence of any nuisance on the premises, and the person so authorised as aforesaid were an officer of the Rural Sanitary Authority.

8. Where application is made to the Local Government Board by a Local Authority under section 62 of the Public Health Act, 1875, to determine what is a reasonable cost within the meaning of that section, the Board may, for that purpose, fix, by order, a general scale of charges for the whole or any part of the district of the Local Authority, and the cost of the supply of water to any house within the area specified in the order shall be deemed to be determined to be a reason-

able cost within the meaning of that section if it does not exceed the cost authorised by such general scale of charges.

9. Where a Rural Sanitary Authority have provided a stand-pipe or stand-pipes for the supply of water to any portion of their district, they may recover water rates or water rents from the owner or occupier of every dwelling-house within 200 feet of any such stand-pipe, in the same manner in all respects as if the supply had been given on the premises.

Provided that if any such dwelling-house has, within a reasonable distance, and from other sources, a supply of wholesome water sufficient for the consumption and use of the inmate of the house, no water rate or water rent shall be recoverable from the owner or occupier of the house unless and until the water supplied by the authority by means of such stand-pipes is used by inmates of the house.

10. When a Sanitary Authority under the provisions of the Public Health Act, 1875, as amended by this Act, supply water in any Urban District or in any contributory place, and an application is made to them by any ten persons rated to the relief of the poor in such Urban District, or by any five persons so rated in such contributory place, to charge water rates or water rents in respect of the water so supplied, it shall be incumbent upon the Authority to exercise the powers given to them by the Public Health Act, 1875, and by this Act, of charging water rates or water rents in respect of all water supplied by them in such Urban District or in such contributory place.

11. The Local Government Board may, if they think fit, by order, invest any Urban Sanitary Authority with all or any of the powers and duties which are by this Act given to a Rural Sanitary Authority, and such investment may be made either unconditionally or subject to any conditions to be specified by the Board as to the time, portion of the district, or manner during at or in which the powers and duties are to be exercised.

12. The forms contained in the Schedule to this Act, or forms to like effect varied as circumstances may require, may be used, and shall be deemed sufficient for all purposes.

13. All powers given by this Act shall be deemed to be in addition to and not in derogation of any other powers, conferred by Act of Parliament, law, or, custom.

That you may be in a position to carry out such clauses, I will briefly refer you to some of the recommendations in the Report of the Royal Commission, "To inquire into the best means of obtaining and preserving Pure Water in Rural Districts."

THE WATER SUPPLY IN RURAL DISTRICTS.

As to the Chemical Quality of Water from different Sources.

1. Of the various kinds of water used for dietetic and domestic purposes, rain water, when collected at a distance from towns upon specially cleansed surfaces and kept in clean receptacles, contains the smallest proportion of total solid impurity; but the organic contamination, even of such specially collected water, sometimes exceeds that of water from springs and deep wells.

2. Rain water collected from the roofs of houses and stored in underground tanks is much more impure; it is often polluted to a dangerous extent by excrementitious matters, and is rarely of sufficiently good quality to be employed for dietetic purposes with safety.

3. Water collected from the surface of uncultivated land, and either allowed to subside in lakes or reservoirs, or filtered through sand, constitutes upland surface water of good quality for domestic, and of still better quality for manufacturing, purposes. Numerous large towns both in England and Scotland are supplied with water of this description. If the gathering ground be non-calcareous, the water is soft and well adapted for washing and for almost all manufacturing operations. It is nearly always wholesome, but sometimes suffers in palatability by containing an excessive quantity of peaty matter in solution.

4. Water collected from the surface of the drains of cultivated land is always more or less polluted with the organic matter of manure, even after subsidence in lakes or reservoirs. Such polluted surface or drainage water is not of good quality for domestic purposes, but it may be used with less risk to health than polluted shallow-well water, if human excrementitious matters do not form part of the manure applied to the land.

5. Surface water, which drains wholly or partially from cultivated land, should always be efficiently filtered before it is supplied for domestic use.

6. *River water*, usually in England, but less generally in Scotland, consists chiefly of the drainage from land which is more or less cultivated. When it is further polluted by the drainage of towns and inhabited places, or by the foul discharges from manufactories, its use for drinking and cooking becomes fraught with great risk to health. A very large proportion of the running waters of Great Britain are either at present thus dangerous or are rapidly becoming so.

7. Still more dangerous to health is *shallow-well water*, when the wells are situated, as is usually the case, near privies, drains or cesspools. Such water often consists largely of the leakage and soakage from receptacles for human excrements;

but, notwithstanding the presence of these disgusting and dangerous matters, it is generally bright, sparkling and palatable.

8. Of the different varieties of potable water, the best for dietetic purposes are *spring* and *deep-well water*. They contain the smallest proportion of organic matter, and are almost always bright, sparkling, palatable, and wholesome; whilst their uniformity of temperature throughout the year renders them cool and refreshing in summer, and prevents them from freezing readily in winter. Such waters are of inestimable value to communities, and their conservation and utilisation are worthy of the greatest efforts of those who have the public health under their charge.

9. The result of our analyses of 589 samples proves—Firstly, that in respect of freedom from that most objectionable of impurities—organic matter (organic carbon and organic nitrogen), these waters range themselves in the following order:—

1. Spring water.
2. Deep-well water.
3. Rain water.
4. Upland surface water.

The last being very much inferior to the first three. Secondly, that the evidence of previous sewage or animal contamination is strongest in the case of spring and deep-well water; but this evidence may, in the case of these waters, be safely disregarded. And thirdly, that as to hardness, rain water and upland surface water are, on the average, very much softer than spring and deep-well water.

10. In respect of wholesomeness, palatability, and general fitness for drinking and cooking, our researches lead us to the following classification of waters in the order of their excellence, and founded upon their respective sources:—

Wholesome	1. Spring water.	Very palatable.
	2. Deep-well water.	
	3. Upland surface water.	Moderately palatable.
Suspicious	4. Stored rain water.	
	5. Surface water from cultivated land.	Palatable.
Dangerous	6. River water to which sewage gains access.	
	7. Shallow-well water.	

11. A large proportion of the water supplied for domestic purposes is used for washing, and in many towns considerable volumes are used in manufactories. For these purposes it is of the utmost importance that the water should be soft—a quality which is not always associated with wholesomeness and

palatability. Classified according to softness, waters from the various sources fall in the following order :—

1. Rain water.
2. Upland surface water.
3. Surface water from cultivated land.
4. Polluted river water.
5. Spring water.
6. Deep-well water.
7. Shallow-well water.

The interests of the manufacturer and the laundress are thus opposed to those of the householder, inasmuch as they lead to a preference for moderately palatable or even unwholesome water, over that which is very palatable and wholesome. Most of the waters from springs and deep wells can be easily and cheaply softened on the large scale by the process previously described, and thus the Sanitary Authorities of towns have at their disposal a method of rendering hard water from springs and deep wells available for washing and manufacturing purposes, without diminishing either its palatability or its wholesomeness.

12. The chemical qualities are profoundly influenced by the character of the geological formations from which it is derived. Rocks and soils which impart to water salts other than those of potash and soda, render it more or less hard; and as such hardening salts are almost invariably compounds of lime and magnesia with carbonic and sulphuric acids, it follows that chalk, limestone, dolomite, and rocks containing the carbonates of lime and magnesia or sulphate of lime, are those which are almost exclusively instrumental in communicating hardness to water. The following formations yield, as a rule, soft water—Igneous, metaphoric, Cambrian, Silurian (non-calcareous), Devonian (non-calcareous), lower greensand, London and Oxford clay. Bagshot beds, non-calcareous gravel.

On the other hand, the following geological formations almost invariably yield hard water:—Silurial (calcareous), Devonian (calcareous), mountain limestone, coal measures (calcareous), new red sandstone, conglomerate sandstone, lias, oolites, upper greensand, chalk.

13. The influence of geological formation upon the palatability and wholesomeness of surface water is often inconsiderable, owing to the deposit of peaty matters upon the surfaces of the rocks or soils; unpolluted surface waters, from the most widely different geological formations, differing but little in the proportions of organic matter which they contain; but where the water percolates or soaks through great thicknesses of rock, its quality, when it subsequently appears as spring or deep-well water, depends greatly upon the chemical character of the material through which it has passed. When the formation

contains much soluble saline matter, the water becomes loaded with mineral impurities, as is frequently the case when it percolates through certain of the carboniferous rocks, the lias, and the saliferous marls. When the rock is much fissured or permeated by caverns or passages, like the mountain limestone for instance, the effluent water differs but little from surface drainage, and retains most of the organic impurities with which it was originally charged. But when it is uniformly porous, like the chalk, oolite, green sand, or new red sandstone, the organic matter, at first present in the water, is gradually oxidized and transformed into innocuous mineral compounds. In effecting this most desirable transformation, and thus rendering the water sparkling, colourless, palatable, and wholesome, the following are the most efficient water-bearing strata:—Chalk, oolite, greensand, new red and conglomerate sandstone.

14. Surface water or river water which contains in 100,000 parts more than 0·2 part of organic carbon, or ·03 part of organic nitrogen, is not desirable for domestic supply, and ought, whenever practicable, to be rejected.

15. Spring and deep-well water ought not to contain, in 100,000 parts, more than 0·1 part of organic carbon or ·03 part of organic nitrogen. If the organic carbon reaches 0·15 part in 100,000 parts, the water ought to be used only when a better supply is unattainable. In all cases in which spring and deep-well water of good quality are available, we recommend that they should be employed, in preference to surface or river water, for domestic supply.

As to the possibility of rendering Polluted Water again Wholesome.

1. When the sewage of towns, or other polluting organic matter, is discharged into running water, the suspended matters may be more or less perfectly removed by subsidence and filtration, but the foul organic matters in solution are very persistent. They oxidise very slowly, and they are removed only to a slight extent by sand filtration. There is no river in the United Kingdom long enough to secure the oxidation and destruction of any sewage which may be discharged into it, even at its source.

2. Of all the processes which have been proposed for the purification of sewage, or of water polluted by excrementitious matters, there is not one which is sufficiently effective to warrant the use for dietetic purposes, of water which has been so contaminated. In our opinion, therefore, rivers which have received sewage, even if that sewage has been purified before its discharge, are not safe sources of potable water.

As to the Propagation of Epidemic Diseases by Potable Water.

1. The existence of specific poisons capable of producing cholera and typhoid fever is attested by evidence so abundant and strong as to be practically irresistible. These poisons are contained in the discharges from the bowels of persons suffering from these diseases.

2. The admixture of even a small quantity of these infected discharges with a large volume of drinking water is sufficient for the propagation of those diseases amongst persons using such water.

3. The most efficient artificial filtration leaves in water much invisible matter in suspension, and constitutes no effective safeguard against the propagation of these epidemics by polluted water. Boiling the infected water for half an hour is a probable means of destroying its power of communicating those diseases.

4. Other epidemics, such as dysentery and diarrhœa, are also probably propagated by drinking water, but the evidence is here neither so abundant nor conclusive as it is in the case of cholera and typhoid fever.

As to the alleged Influence of the Hardness of Potable Water upon Health.

1. Whilst waters of excessive hardness may be productive of calculus, and perhaps other diseases, soft and not excessively hard waters, if equally free from deleterious organic substances, are equally wholesome.

2. In towns where the chief sanitary conditions prevail with tolerable uniformity, the rate of mortality is uninfluenced by the softness or hardness of the water supplied to the inhabitants.

As to the Softening of Hard Water.

1. All hard water can be softened either by distillation or by the addition of a sufficient quantity of soap or carbonate of soda. Water, the hardness of which is due to the carbonates of lime and magnesia (temporary hardness), may be softened, either by boiling for half an hour or by the addition of a proper quantity of slaked lime. Except the last, all these processes are expensive and inapplicable on the large scale.

2. Water, the hardness of which is wholly or chiefly of the temporary kind, may be easily, cheaply, and efficiently softened on the large scale by the proper use of lime, and the wholesomeness and palatability of such water are sometimes increased and never diminished by the process.

3. The lime method of softening may be applied with ease and great economy to the whole supply of even the largest towns, provided the hardness of the water be wholly or chiefly of the temporary kind.

As to the Improvement of Water by Filtration.

1. Sand filtration, as carried out in waterworks, not only clarifies the water by removing suspended impurities, but also diminishes the proportion of organic matter in solution to an extent dependent upon the thickness of the filtering medium and the rate at which the water passes through that medium.

2. Domestic filtration, as usually practised, is of little or no use; but, properly performed, it is much more efficient than sand filtration on the large scale in improving the quality of water polluted by organic matters. The best materials for domestic filters are spongy iron and animal charcoal.

3. Although the improvement of excrementally polluted water by filtration may reasonably be considered, on theoretical grounds, to afford some feeble protection against the propagation of epidemic diseases by water, no trustworthy evidence can be adduced in support of such a view.

As to the Deterioration of Water during its Transmission through Mains and Service Pipes.

1. Potable water can be transmitted through mains of even great length, if they be properly laid, without any appreciable deterioration of quality; but if the joints are corked with hemp, or other similar organic material, the water is often seriously polluted for months, or even years, after the laying of the mains.

2. The experience of Glasgow, Manchester, and other towns proves conclusively that leaden surface pipes can be safely used for the delivery even of water which acts violently upon lead, if the pipes be kept constantly charged with water.

As to the Constant and Intermittent Systems of Supply.

1. All storage of drinking water in houses is attended with the risk of pollution. Good water is spoiled and bad water rendered worse by the intermittent system of supply. All drinking water ought to be drawn direct from the main.

2. Under proper supervision, the waste of water is less on the constant than it is on the intermittent system of supply.

3. These and other advantages have led to the adoption of the constant system in a great majority of British towns.

As to the Water Supplies of Cities, Towns, and Inhabited Places.

1. A large majority of the cities and large towns, other than London, are abundantly supplied with palateable and wholesome water. In manufacturing towns the supply is generally also soft.

2. In other towns and in villages, and other inhabited places, the water available for domestic purposes is frequently neither

abundant nor wholesome. In these cases it is a widely spread custom to drink either the waters of rivers into which the excrements of man are discharged, or the water from shallow wells, which are largely fed by soakage from middens, sewers, and cesspools.

3. Immense numbers of the population are thus daily exposed to the risk of infection from typhoidal discharges, and periodically to that from cholera dejections.

4. The supply of villages and hamlets with wholesome water is often a problem of great difficulty, since the number of inhabitants is too small to permit of the execution of expensive works for such an object. We therefore recommend that in any scheme for the utilization for town supply of the pure water of a river basin, the wants of all neighbouring villages and hamlets should be provided for as practicable; and we further recommend that the owners of land should be permitted to include the cost of village water supply among those expenditures on land improvements which they are now enabled with the sanction of Her Majesty's Inclosure Commissioners, to charge upon their estates.

5. Whenever the necessities of the case compel the supply of water to a town from a river or stream into which the excrements of man, whether purified or not, are discharged, we recommend that storage reservoirs should be provided of sufficient capacity to render unnecessary the abstraction of water from such rivers or streams during floods. These storage reservoirs ought to be so constructed and worked as to allow of the discharge of their contents into the river or stream, whenever the quality of the latter becomes superior to that of the previously impounded water.

With these recommendations as our guide we, I trust, shall have but little to contend with, (with the exception) of what will be the reasonable distance prescribed to obtain such pure water. This is a question of moment and can only be solved by evidence and circumstances brought before your respective Sanitary Boards, with this valuable Act being in force and Bye-Laws being obtained by your Boards to PREVENT THE SPREAD OF INFECTIOUS DISEASE.

"That every medical man attending such shall give notice to the Medical Officer of Health within a given number of hours after diagnosing the same under a penalty, the same bye-laws being made also to compel householders, and those in charge of patients suffering from infectious disease to give the same information to the Medical Officer of Health under a penalty also. This new Act and these bye-laws being in force, I without hesitation affirm you will have presented to you a lesser RATE OF MORTALITY in each district than I have the pleasure of now announcing to you. I submit for your consideration and that of the Local Government Board, there is no county in England possessing combined sanitation under one Medical Officer of Health that has responded to the requirements of the Public Health Act so well (and with such undeniable evidence) as the county of Hereford. The marked diminution in the rate of Infantile Mortality in the county, the gradual and firm decrease of deaths from all causes in every district where I have been supported, the visible absence of the word "Fever" in the tables of deaths attached to your several reports, and the absence of any legal proceedings being necessary to enforce the requirements of the Public Health Act. These facts, and many more I could adduce, will, I doubt not, substantiate this assertion. In my different reports to each of your Authorities for this year you will observe where the greatest appreciation of the Public Health Act has been shown for the last six years by comparing the rate of mortality in 1873 with that of 1878.

In every Union Report I have been able this year to give you full particulars of Sanitary Progress made, which I can vouch for (with one exception) that of Pauper Sickness. In the returns I receive from your several Boards, I find great irregularities therein, some of the paupers' names having only the address given, some wanting the age inserted, some with no disease mentioned, &c., &c.

I have further to inform you the third house to house Sanitary Survey of the whole of your combined districts is again commenced. In such will be found out those premises wanting and deficient of pure water for domestic purposes. This must naturally entail an extra amount of labour upon the Inspector and myself, as well as considerable expense, as, before a sample of water can be pronounced impure and unfit for use, a sample must be sent for analysis before action can be taken by your Authorities to enforce the supply of good water. This sample will have to be obtained by providing glass stoppled two quart bottles, which will have to be placed in wooden cases for travelling. These and carriage of same will form an item that can only be met by your respective Boards under section 7 of this new Act.

In conclusion, I submit for your and the Local Government Board's consideration—That a holiday once a year be allowed me of a month's duration in order that I may obtain change and sea air. For five years and three months I have worked without a day's intermission, the result being I am in a state of convalescence, recovering from blood poison, arising from an attack of enteric and scarlet fever, &c., all contracted whilst carrying out my official duties, leaving me still very weak. Before closing this report, I must not omit to tender my thanks to your chairman and delegates for responding to my appeal for sick leave of absence.

I am, Mr. Mayor and Gentlemen,
Your obedient Servant,
VAVASOUR SANDFORD,
M.D., L.R.C.P., London, M.G.S., &c.
The Vinery, Hereford, Dec. 31, 1878.

THE URBAN SANITARY AUTHORITY OF THE CITY OF HEREFORD.

Population of City, about 19,100.
Houses, about 3,390, giving about 5 people to a house.
Area, 2,417 acres.
Parishes, 6.

The second house to house survey of this City is now finished.

Nuisances found to exist this year	330
Nuisances removed by owner or occupier...	330
Consisting of removal of Pigs and Styes, Pigs' Wash, Filth, and Ashes	163
Stoppage of Pipes and Drains to W.C.'s	96
Smoke, Dead Animals, Offensive Poultry, &c. ...	71
Prosecutions under the Act	1
Structural work done	0
Lodging Houses Licensed, Inspected and Whitewashed twice a year	8
Bakehouses, Inspected and Whitewashed twice a year	35
Slaughter-houses, Inspected and Whitewashed twice a year...	8
Do. (Public), fitted up with every Sanitary Arrangement. The Provision Market good and Inspected regularly twice a week, in which three cases of improper food have been offered for sale this year and condemned	
Disinfection of Bedding, Beds, Clothes, and Drapery carried out in all cases, at the Public Apparatus—when required.	
Births for the year 1878, Males	237
,, ,, Females	243
Total	480
Of this number 33 were Illegitimate, the position in life of the mother being returned as "Domestic Servant," showing an increase of 9 to the 24 for the year 1877.	
Deaths from all causes	335
And if we deduct 20 of these out of 31 that died in the Infirmary this year that were brought from other districts to be treated it will give us the moderate	
Rate of Mortality of	16·38 per 1000.

Table of Mortality and Sickness in the Urban Sanitary District of the City of Hereford, for the twelve calendar months ending December 31st, 1878.

NAME OF DISEASE.	Deaths (among all classes) registered as having occurred in the District or Division.		Sickness and Deaths among Paupers.			
	Total Deaths registered as above.		Sickness and Deaths among out-door paupers; and among any paupers who belong to the District or Division, and have been removed into the Workhouse on account of illness; whether the Workhouse be within or without the District or Division.			
			NEW CASES.		DEATHS.	
	Aged under 5.	Aged 5 and upwards.	Aged under 5.	Aged 5 and upwards.	Aged under 5	Aged 5 and upwards.
I.	II.	III.	IV.	V.	VI.	VII.
Small Pox	..	..	..	..	..	..
Measles	8	..	7	5	..	1
Scarlatina	2	2	4	2	..	..
Diphtheria	..	4	..	2	..	1
Croup (not "spasmodic")	2	..	..	2	..	..
Whooping-Cough	6	1	3	1	1	..
"Continued" Fevers: Typhus	..	..	..	..	..	..
"Continued" Fevers: Enteric	..	..	..	..	..	..
"Continued" Fevers: Of other, or doubtful sorts	..	..	..	..	..	..
Diarrhœa and Dysentery	12	3	9	..	3	1
Cholera	..	..	..	..	..	..
Rheumatic Fever	..	2	2	..	..	..
Erysipelas	1	..	..	..	..	..
Pyæmia	..	..	..	..	..	..
Puerperal Fever	..	1	..	..	..	..
AGUE	..	..	..	..	..	..
PHTHISIS	3	26	..	6	..	1
BRONCHITIS, PNEUMONIA, AND PLEURISY	15	30	22	20	3	7
HEART-DISEASE	..	31	..	25	..	4
INJURIES	4	8	1	5	..	1
DISEASES NOT NAMED ABOVE	47	127	40	180	10	11
Total	100	235	88	248	17	27

TABLE of DEATHS during the year 1878 in the Urban Sanitary District of the City of Hereford, classified according to Diseases and Ages, and showing also the Population of such, and the Births therein during the year.

	POPULATION AT ALL AGES.			MORTALITY FROM ALL CAUSES, AT SUBJOINED AGES.							MORTALITY FROM SUBJOINED CAUSES, DISTINGUISHING DEATHS IN PERSONS UNDER FIVE YEARS OF AGE.																					
																		Continued fevers.														
Names of Localities.	Census 1871.	Estimated to middle of 1878	Registered Births	At all ages.	Under 1 year.	1 and under 5.	5 and under 15	15 and under 2	25 and under 6	60 and upwards		Smallpox	Measles.	Scarlatina	Diphtheria	Croup (not "spasmodic")	Whooping Cough	Typhus	Enteric or Typhoid	Other or Doubtful	Diarrhœa and Dysentery	Cholera	Rheumatic fever	Erysipelas	Pyæmia	Puerperal fever	Ague	Phthisis	Bronchitis, Pneumonia, and Pleurisy	Heart Disease	Injuries	Other Diseases
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
Hereford Urban Sanitary Authority ...	18347	19100	480	335	63	37	19	16	78	122	undr 5	..	8	2	..	2	6	..	..	..	12	..	..	1	..	..	..	3	15	..	4	47
											5 upws	..	..	2	4	..	1	..	..	..	3	..	2	..	..	1	..	26	30	31	8	127
Totals......	18347	19100	480	335	63	37	19	16	78	122	undr 5	..	8	2	..	2	6	..	..	..	12	..	..	1	..	..	..	3	15	..	4	47
											5 upws	..	..	2	4	..	1	..	..	—	3	..	2	..	..	1	..	26	30	31	8	127

THE URBAN SANITARY AUTHORITY OF THE CITY OF HEREFORD.

December 31, 1878.

Mr. Mayor and Gentlemen,—It is with pleasure I now lay before you my Fifth Annual Report of the Sanitary condition of your City, and I have only to refer you to the tables of mortality and sickness hereto attached to convince you of the great benefits derived from your Sanitary Committee so ably carrying out the Public Health Act, 1872 and 1875, under the direction of their Chairman, T. Cam, Esq., who has at all times been most willing to assist me in putting the different clauses of such Act in force with judgment and firmness. Allow me in this Report to call your attention to the first and greatest benefit so received, the lessening of the Death Rate since the Act was put in force in this City. In the year 1873 such death-rate stood at 22 per 1000. This year it stands at 16·38 per 1000—very near 6 per 1000 less—(or in plain figures) 115 deaths less this year than in the year 1873. Can any evidence be more convincing than these undeniable figures? And this is not all. This lessening of the death-rate is not simply a spurt attributable to some months in the year being warmer, or with more ozone generated and distributed. No year has been more trying to the constitution than 1878. This decrease has been gradual and persistent year by year, until we now rank as an Urban Sanitary Authority (with a population close upon 20,000) with as low a rate of mortality as any in the United Kingdom, and I unhesitatingly affirm that by going on with enforcement of the different clauses in this most valuable Act of Parliament we shall, in my report for 1879, show even a greater reduction of deaths. I would again direct your attention to the Mortality Tables. Herein you will perceive we have not a death recorded from Typhus, Typhoid, Enteric, or any continued fevers, for the last twelve months; and as regards the four Diphtheria cases mentioned, therein one supervened upon the puerperal state, the patient residing close to and on the banks of the River Wye, the water of which, during flood time, flowed into the basement of the house. Another case occurred in a house the other side of the Wye, also situated very low. In this house five other people were down with throat complaints, some of which also assumed a Diphteric character. Of the other two deaths from this disease, no Sanitary defects were apparent about the premises, and I am confidentially informed one of these cases contracted the disease at a long distance from this city, and imported it here. In such Table of Mortality will also be seen four deaths mentioned as emanating from Scarlet Fever. Out of this number three occurred in one family, the infection being distinctly traceable to one of its members coming direct from service, where patients were just recovering from this disease. Again referring you to this Mortality Table, it will be seen there are fifteen more deaths registered this year than last year in the Infantile and under five years of age columns. This increase, it will be perceived, originates from an Epidemic of Measles, accompanied by severe Pulmonary Affections. From this malady alone eight deaths under five years of age are recorded. These, with six from Whooping Cough, will account for this increased infantile rate.

Let me now draw your attention to the Births in the City for the year 1878. These amount to 480, against 386 for 1877, giving an increase of 94. Of these 480 births I regret to say 33 are Illegitimate. This Illegitimacy, I am sorry to state, is sadly on the increase. From these Mortality Statistics I would briefly touch upon general subjects, the first and most important being that of this Urban Sanitary Authority submitting to an order being made upon them by the County Court Judge to remove from and take away the sewage emanating from this City which is now flowing into and fearfully polluting the River Wye, within three years, such order being dated December, 1878, under a penalty of £5 per day. Added to this sewage pollution I would mention that the River Wye met with further pollution by the emptying into it of nearly 2,000 gallons of Creosote or wood pickle, which for a time so fearfully impregnated the water for miles down the river as to kill all species of fish from the salmon to the smallest eel or minnow, or render them totally unfit for human food for months. I collected on the day of such pollution 19 different sorts of fish all taken out of the river dead or dying. The water being very low this poison was perceptible for some time after, and I much fear will have a serious effect on our future supply of fish, and had not precautions been taken by me in warning the owners of stock, who had some on the banks of the river, to remove them, a heavy pecuniary loss might have been sustained by them. I also telegraphed to the Authorities at Ross, and elsewhere, warning them also of this pollution, and the necessity of their laying in a sufficient supply of the Wye water for general purposes before the impurity reached them, there being ample time, and the river very low, not travelling more than at the rate of a mile an hour in some places, and where the sluggishness took place, at the bottom of the river, it could be seen covered with dead young Salmon or what is called "Last Spring," and all sorts of other fish. I would remark it was most fortunate this pollution took place half a mile below the "intake" of the City water works, or the consequences would have proved most disastrous to the inhabitants who depend entirely upon the River Wye for water, the purity and excellence of which by the accompanying analysis prove it to be.

Professor Horsley's report upon his analysis of the Wye water is as follows:—

Comparative Analysis of Wye and Severn Water.

	Total solids per gal.	Oxydised matter.	Hardness.
Wye (Hereford) ...	7·20 grains ...	0·48 grains ...	6 degrees.
Severn (Worcester)	16·90 ,, ...	1·05 ,, ...	9 ,,

Estimation of the Distilled Water of the Wye for Free Ammonia and for Albumenoid Ammonia.

First distillation, with carbonate of soda for free ammonia	·0016 grains.
Second distillation, with caustic potash and permagnate for albumenoid ammonia	nil.

Comparative Estimation of Water Supply for Albumenoid Ammonia.

Wye at Hereford	·0256 per gallon.
West Middlesex	·0148 ,,
Loch Katrine	·0560 ,,

* Twice that of the Wye.

Now here we have the best London water and the famous Scottish lake water, yet it appears that as far as albumenoid ammonia is concerned, the Wye at Hereford is better by a long way than either of them, which is so far satisfactory as to justify me in reiterating my former opinion of the general good quality of the water supply of the city of Hereford.

John Horsley, F.C.S.,
Consulting and Analytical Chemist to the Counties of
Hereford and Gloucester and Gloucester City.

It now only remains for me to state the second house to house Sanitary Survey has been made by your able Inspector of Nuisances, Mr. B. B. Bridgewater, disclosing the before mentioned nuisances which have all been removed, and that a Third Survey is in hand which I doubt not will be carried out by him with the same excellent result.

Allow me before closing this report to tender my sincere thanks to you, Mr. Mayor and Gentlemen, for granting me sick leave of absence for so long a time, and for appointing my son, Dr. Horace C. Sandford, as Medical Officer of Health in my place, who, from what I hear and practically know, has fully carried out the duties of this important office equal to myself as an Analyst and Medical Officer of Health, and to your entire satisfaction.

I am, Mr. Mayor and Gentlemen,
Your obedient Servant,
VAVASOUR SANDFORD.
M.D., L.R.C.P., London, &c., &c.

The Vinery, Hereford.

THE HEREFORD RURAL SANITARY AUTHORITY,

DIVIDED INTO THREE DISTRICTS.

Area : 70,974 Acres, consisting of 42 Parishes.
Population, about 17,093.
Houses, 4,705.
Aggregate number of people to each house, about 4.

The Second House-to-House Sanitary Survey is now finished.

Number of Nuisances found to exist this year, 253, consisting of—

Defective Drainage	34
Bad Privy accommodation	60
Dirty Pigstyes removed	34
Houses repaired	12
Offensive Drains, Ditches, &c.	14
Filthy Privies removed or altered and cleaned	73
Dwellings without Water Supply	22
Dangerous Wells altered	2
Bad Water in Wells	2
Unexpired notices to abate	3
Births	496
Deaths from all causes this year	274

and if we deduct the 26 deaths that took place in the Lunatic Asylum at Burghill that came from other districts this year, it will give us the very moderate

Rate of Mortality ... ... 14·50 per 1,000 for the whole of Union district.

Table of Mortality and Sickness in the three Divisions of the Rural Sanitary District of the Hereford Union for the twelve calendar months ending December 31st, 1878.

Name of Disease.	Deaths (among all classes) registered as having occurred in the District or Division. Total Deaths registered as above.		Sickness and Deaths among Paupers. Sickness and Deaths among out-door paupers; and among any paupers who belong to the District or Division, and have been removed into the Workhouse on account of illness; whether the Workhouse be within or without the District or Division.			
			New Cases.		Deaths.	
	Aged under 5.	Aged 5 and upwards.	Aged under 5.	Aged 5 and upwards.	Aged under 5	Aged 5 and upwards.
I.	II.	III.	IV.	V.	VI.	VII.
Small Pox	..	..	..	..	..	..
Measles	2	1	10	17	2	..
Scarlatina	..	1	7	2	1	..
Diphtheria	..	1	2	..	1	..
Croup (not "spasmodic")	4	..	1	..	1	..
Whooping-Cough	1	..	4	2	1	1
"Continued" Fevers: Typhus	..	..	..	..	..	..
"Continued" Fevers: Enteric	..	2	..	2	..	1
"Continued" Fevers: Of other, or doubtful sorts	..	..	..	..	..	..
Diarrhœa and Dysentery	4	3	17	19	1	2
Cholera	..	..	..	..	..	..
Rheumatic Fever	..	..	..	2	..	..
Erysipelas	..	1	..	..	..	..
Pyæmia	..	1	..	..	..	..
Puerperal Fever	..	1	..	1	..	1
AGUE	..	..	..	..	..	..
PHTHISIS	..	22	..	3	..	3
BRONCHITIS, PNEUMONIA, AND PLEURISY	13	34	40	65	4	9
HEART-DISEASE	..	23	..	13	..	4
INJURIES	..	7	4	7	..	6
DISEASES NOT NAMED ABOVE	30	123	80	240	9	13
Total	54	220	165	373	20	40

TABLE of DEATHS during the year 1878 in the three Divisions of the Rural Sanitar7 District of Hereford Union, classified according to Diseases, Ages, and Localities. and showing also the Population of such Localities, and the Births therein during the year.

Names of Localities.	POPULATION AT ALL AGES.		Registered Births	MORTALITY FROM ALL CAUSES, AT SUBJOINED AGES							MORTALITY FROM SUBJOINED CAUSES, DISTINGUISHING DEATHS IN PERSONS UNDER FIVE YEARS OF AGE.																						
																		Continued fevers.														
	Census 1871.	Estimated to middle of 1878		At all ages.	Under 1 year.	1 and under 5.	5 and under 15	15 and under 25	25 and under 60	60 and upwards		Smallpox	Measles.	Scarlatina	Diphtheria	Croup (not "spasmodic")	Whooping Cough	Typhus	Enteric or Typhoid	Other or Doubtful	Diarrhœa and Dysentery	Cholera	Rheumatic fever	Erysipelas	Pyæmia	Puerperal fever	Ague	Phthisis	Bronchitis, Pneumonia, and Pleurisy	Heart Disease	Injuries	Other Diseases
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
Dewchurch ..	4538	4638	126	58	5	2	4	4	13	30	undr 5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	4
											5 upws	..	..	..	..	..	..	..	2	..	..	..	..	..	..	1	..	7	7	9	1	24
Fownhope.. ...	5654	5694	167	84	13	4	5	4	21	37	undr 5	..	..	..	..	2	1	..	..	..	3	..	..	..	..	..	..	..	2	..	..	9
											5 upws	..	..	1	1	..	..	..	..	—	3	..	—	..	1	..	..	6	15	7	4	29
Burghill......	6901	7001	203	132	20	10	5	9	29	59	undr 5	..	2	..	..	2	..	..	..	..	1	..	..	..	..	..	..	..	8	..	..	17
											5 upws	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	9	12	7	2	70
Totals......	17093	17333	496	274	38	16	14	17	63	126	undr 5	..	2	..	..	4	1	..	..	..	4	..	..	..	..	..	..	..	13	..	..	30
											5 upws	..	1	1	1	..	..	..	2	—	3	..	..	1	1	1	..	22	34	23	7	123

THE HEREFORD RURAL SANITARY AUTHORITY.

December 31st, 1878.

Gentlemen,—In no Union district in this county under my supervision has there been one that has responded so well to the requirements of the Public Health Act as yours. In the year 1873-4 I returned your rate of mortality as standing at close upon 23 per 1000, and from that date to this year has been a gradual and firm decrease until I am now able to announce to you your death-rate has now dropped to 14·50 per 1000 for the year 1878, and what will be more gratifying to you is ; on referring to the Sickness and Mortality Tables you will find that with the exception of two cases of Enteric there are none of that type recorded, and of these cases one is of a very doubtful class, and neither are attributable to any great Sanitary deficiency about the premises. When you compare this report with the one for 1873, and the great decrease of deaths now made visible from preventable disease, I feel assured you will be amply rewarded for your gratuitous and able assistance rendered to me for now, nearly six years in carrying out the Public Health Act.

In order that you may be thoroughly and correctly informed upon these facts, I have been able to divide your Union District Mortality into three districts.

In the Dewchurch district the Mortality is	11	per	1000
The Fownhope ,, ,,	14	,,	,,
The Burghill district, deducting 26 deaths in the Lunatic Asylum	16	,,	,,

These three districts together only show a rate of Infantile Mortality of just over three per 1000 for the year 1878.

Of general subjects, I have only to call your attention to the Public Health (Water) Act, which comes in force on March 25th of this year. This Act has already casually been discussed by your Sanitary Committee. In many parishes in your district I fear great difficulty will be experienced in providing good water within a reasonable distance to some of the cottages, and in order to meet such difficulty I have in my address to this Report quoted from some of the Reports of the Royal Commission appointed in 1876 to determine where the best waters may be found in rural districts and the class of water to be preferred. To carry out this Act will add considerably to the work of the Inspector of Nuisances, as also for myself, entailing considerable expense in providing "glass-stoppled" "Winchester" quart bottles, to procure samples of water to send to the County Analyst, together with carriages, and packing cases, &c. Without a certificate from a qualified Analyst such Act cannot be enforced with success.

As a third house to house Sanitary Survey is now about being made throughout your 42 Villages, a column will be inserted in the Survey Sheets setting forth the Water Supply to each house therein, and the visible quality and quantity, and at what distance from the premises.

All further information as to number of nuisances and other matters removed, I have briefly mentioned, they having been brought before your notice at your last quarterly meetings.

It only remains for me to thank your chairman, vice-chairman, and committee for your able assistance at all times rendered to me, when solicited, and to further thank you for my sick leave of absence, which has enabled me to resume my responsible duties.

I am, Gentlemen,
Your obedient Servant,
VAVASOUR SANDFORD,
M.D., L.R.C.P., London, &c.

The Vinery, Hereford.

THE BROMYARD RURAL SANITARY AUTHORITY

DIVIDED INTO THREE DISTRICTS.

Area: 61,659 Acres.
Population: 11,934.
Houses, about 2,554.
Aggregate number of people to each house, about four and a fraction.

The Second House-to-House Sanitary Survey is now finished.

Number of Nuisances found to exist, 190, consisting of—	
New Privies erected	31
Dwellings rebuilt or repaired	35
Dwellings cleaned, whitewashed, &c.	24
New Drains and Watercourses	15
Lodging-houses Licensed	1
Overcrowding removed	9
Privies, Cesspools, and other Offal cleansed or removed	24
Prosecutions under the Lodging-house Act, one fined £1, and 10s. costs.	1
Births for the year 1878	330
Deaths ,, ,,	190
Rate of Mortality	15·92 per 1,000

Table of Mortality and Sickness in the three Divisions of the Rural Sanitary District of the Bromyard Union for the twelve calendar months ending December 31st, 1878.

NAME OF DISEASE.	Deaths (among all classes) registered as having occurred in the District or Division.		Sickness and Deaths among Paupers.			
	Total Deaths registered as above.		Sickness and Deaths among out-door paupers; and among any paupers who belong to the District or Division, and have been removed into the Workhouse on account of illness; whether the Workhouse be within or without the District or Division.			
			NEW CASES.		DEATHS.	
	Aged under 5.	Aged 5 and upwards.	Aged under 5.	Aged 5 and upwards.	Aged under 5	Aged 5 and upwards.
I.	II.	III.	IV.	V.	VI.	VII.
Small Pox	..	..	..	..	..	..
Measles	..		4	7	..	..
Scarlatina	..		2	5	..	..
Diphtheria	..	..	1	2	..	..
Croup (not "spasmodic")		..	2	..	..	..
Whooping-Cough	1	1	2	1	..	
"Continued" Fevers { Typhus	..	..	..	..	..	..
"Continued" Fevers { Enteric	1		1	1	..	..
"Continued" Fevers { Of other, or doubtful sorts	..	2	2	3	..	..
Diarrhœa and Dysentery	1	..	7	20		
Cholera	..	..	..	..	..	..
Rheumatic Fever	..	..	2	6	..	..
Erysipelas	..		1	..	..	..
Pyæmia	..	1	..	1	..	..
Puerperal Fever	..		..	1	..	
AGUE	..	..	..	..	..	..
PHTHISIS	..	9	..	9	..	1
BRONCHITIS, PNEUMONIA, AND PLEURISY	9	32	26	70	3	8
HEART-DISEASE	..	21	..	9	..	6
INJURIES	2	3	2	5	..	
DISEASES NOT NAMED ABOVE	36	71	40	200	5	32
Total	50	140	92	340	8	47

TABLE of DEATHS during the year 1878 in the three Divisions of the Rural Sanitary District of Bromyard Union, classified according to Diseases, Ages, and Localities. and showing also the Population of such Localities, and the Births therein during the year.

Names of Localities.	POPULATION AT ALL AGES.		Registered Births	MORTALITY FROM ALL CAUSES, AT SUBJOINED AGES.							MORTALITY FROM SUBJOINED CAUSES, DISTINGUISHING DEATHS IN PERSONS UNDER FIVE YEARS OF AGE.							Continued fevers.														
	Census 1871.	Estimated to middle of 1878		At all ages.	Under 1 year.	1 and under 5.	5 and under 15	15 and under 25	25 and under 60	60 and upwards		Smallpox	Measles.	Scarlatina	Diphtheria	Croup (not "spasmodic")	Whooping Cough	Typhus	Enteric or Typhoid	Other or Doubtful	Diarrhœa and Dysentery	Cholera	Rheumatic fever	Erysipelas	Pyæmia	Puerperal fever	Ague	Phthisis	Bronchitis, Pneumonia, and Pleurisy	Heart Disease	Injuries	Other Diseases
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
No. 1 or Brockhampton	3756	3806	118	68	16	4	2	5	11	30	undr 5	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	3	..	1	14
											5 upws	..	..	..	..	..	1	..	..	1	..	..	..	..	1	..	..	4	5	9	..	27
No. 2 or Bishop Froome	4510	4558	113	65	12	1	1	0	18	33	undr 5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13
											5 upws	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	2	20	9	2	18
No. 3 or Bromyard Sub-District.	3668	3710	99	57	12	5	0	4	15	21	undr 5	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	6	..	1	9
											5 upws	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	7	3	1	26
Totals......	11934	12074	330	190	40	10	3	9	44	84	undr 5	..	..	..	..	..	1	..	1	..	1	..	..	..	..	..	..	..	9	..	2	36
											5 upws	..	..	..	..	..	1	..	..	2	..	..	..	..	1	..	..	9	32	21	3	71

THE BROMYARD RURAL SANITARY AUTHORITY.

December 31st, 1878.

Gentlemen,—In presenting you with my Annual Report on the Sanitary condition and healthiness of your town and district I regret being unable to lay before you in the mortality tables hereto attached, that amount of reduction in the number of deaths from all causes throughout your union district as are made apparent by me in many other union districts in this county. under my supervision as Medical Officer of Health. In the year 1873-74 I reported your rate of mortality stood about 14 per 1,000, and for the year 1878 I have to report to your Board it is 16 per 1,000, having a total from your three districts of 190 deaths for the year. On dissecting or rather localising this number of deaths I find your No. 1 or Brockhampton district gives the heaviest death rate, being at the rate of 18 per 1,000, (a much too high rate for a purely agricultural and thinly populated district.) Next in magnitude comes your No. 3 or Bromyard district, returning a death rate, this year of 15·53 per 1,000, or over 15 and a half, then comes your No. 2 or Bishop Froome district, with a rate of 14·41 per 1,000, or not quite 14 and a half—the lowest in your union. Although this district is considerably lower than your No. 1 district still this rate of nearly 15 is too high for a rural one. On carefully perusing and examining the Tables and Causes of Mortality in your union district, I find nothing of a particular nature to call your attention to with the exception of 20 deaths registered in the Bishop Froome district, from pulmonary diseases, which disease assumed quite an epidemic of an endemic character in this parish. Attacking those principally engaged in agriculture and over 25 years of age, indeed I have not a death registered in this district for the whole year under five years of age, that has emanated from zymotic disease, and the rate of infantile mortality and those under five years of age, does not exceed just over four per 1,000 from all causes throughout your union district.

This Bishop Froome epidemic I fully reported to you and the Local Government Board in April and July last. From this I would draw your attention to the No. 3 and town of Bromyard district, and point out to you the serious responsibility that now devolves upon you as a Sanitary Authority in abandoning the long discussed and devised scheme for sewering this town, and so freeing many valuable wells of water from pollution by the sewage now finding its way into them.

Under the new Public Health (Water) Act, 1878, which will be in force on 25th March, 1879, under sections 3 and 6, it will be your duty as a Sanitary Authority to provide, or cause to be provided, water to every occupied house within your town and district at a reasonable cost and within a reasonable distance from such house so occupied. I submit now, as many more able men than myself have done for years past, that the amount of purity of such supply as you have now is not sufficient to meet the demands of the inhabitants of your town as to ensure health; and I am called upon again to lay this matter before you, and ask you to consider and devise some scheme to meet the demands of this new Act. In this Act you have power now to protect all springs and wells situated in and near all the villages in your district, and further to obtain water for every house occupied, by sinking wells or causing them to be made, and doing other works to procure water, without which a house now will become a nuisance and untenantable.

I have now to inform you a third house to house Sanitary Survey of the whole of your Union district is now commenced, and in such will be particularly pointed out those premises where no good water is, or situated beyond "a reasonable distance to obtain such," as specified in the new Act, 1879.

For your guidance I have in my address briefly quoted from the Report of the Royal Commission appointed to ascertain the best means to obtain pure water, and where such is to be preferred, and that which is to be avoided in rural districts. This last can only be determined by the certificate of a qualified Analyst to enable your Authority to meet and carry out the requirements of the Act, and in such Act you are called upon to determine what will be considered as a reasonable distance for an occupier of a house to fetch pure water sufficient to supply the whole of the occupiers of such house, calculating, that each adult utilize the minimum allowed (of nine gallons) per day for all purposes.

I am, gentlemen,
Your obedient Servant,
VAVASOUR SANDFORD,
M.D., L.R.C.P., London, &c.

The Vinery, Hereford.

THE LEOMINSTER RURAL SANITARY AUTHORITY

DIVIDED INTO THREE DISTRICTS.

Area : 64,593 Acres, consisting of 25 Parishes.
Population, about 10,662.
Houses, about 2,180.
Aggregate number of people to each house, about four and a half.

The Second House-to-House Sanitary Survey is now completed.

Number of Nuisances found to exist	100
Consisting of Dwellings repaired and whitewashed...	15
Privies erected and repaired	17
Pigstyes removed	12
New drains and repairs	25
Pumps, draw wells repaired, &c.	10
Public wells protected	3
Overcrowding removed	3
In hand	15
Births for the year, 1878	274
Deaths ditto, ditto	129
Rate of Mortality	12·09 per 1,000

Table of Mortality and Sickness in the three Divisions of the Rural Sanitary District of the Leominster Union for the twelve calendar months ending December 31st, 1878.

NAME OF DISEASE.	Deaths (among all classes) registered as having occurred in the District or Division.		Sickness and Deaths among Paupers.			
	Total Deaths registered as above.		Sickness and Deaths among out-door paupers; and among any paupers who belong to the District or Division, and have been removed into the Workhouse on account of illness; whether the Workhouse be within or without the District or Division.			
			NEW CASES.		DEATHS.	
	Aged under 5.	Aged 5 and upwards.	Aged under 5.	Aged 5 and upwards.	Aged under 5	Aged 5 and upwards.
I.	II.	III.	IV.	V.	VI.	VII.
Small Pox	..	..	..	..	..	..
Measles	1	..	9	8	..	..
Scarlatina	..	..	7	2	..	..
Diphtheria	..	1	..	..	..	..
Croup (not "spasmodic")	..	..	2	..	..	..
Whooping-Cough	..	..	3	..	..	..
"Continued" Fevers { Typhus	..	..	..	..	..	..
Enteric	..	1	..	..	..	..
Of other, or doubtful sorts	..	..	..	1	..	..
Diarrhœa and Dysentery	4	1	12	6	1	1
Cholera	..	..	..	..	..	..
Rheumatic Fever	..	..	..	..	..	..
Erysipelas	..	..	..	2	..	..
Pyæmia	..	..	..	..	..	..
Puerperal Fever	..	..	..	..	..	..
AGUE	..	..	..	..	..	..
PHTHISIS	..	10	..	6	..	2
BRONCHITIS, PNEUMONIA, AND PLEURISY	6	12	20	30	3	10
HEART-DISEASE	..	23	..	2	..	3
INJURIES	..	1	..	2	..	1
DISEASES NOT NAMED ABOVE	24	45	60	150	3	7
Total	35	94	113	209	7	24

TABLE of DEATHS during the year 1878 in the three Divisions of the Rural Sanitary District of Leominster Union, classified according to Diseases, Ages, and Localities. and showing also the Population of such Localities, and the Births therein during the year.

Names of Localities.	POPULATION AT ALL AGES.		Registered Births	MORTALITY FROM ALL CAUSES, AT SUBJOINED AGES.								MORTALITY FROM SUBJOINED CAUSES, DISTINGUISHING DEATHS IN PERSONS UNDER FIVE YEARS OF AGE.						Continued fevers.														
	Census 1871.	Estimated to middle of 1878		At all ages.	Under 1 year.	1 and under 5.	5 and under 15	15 and under 25	25 and under 60	60 and upwards		Smallpox	Measles.	Scarlatina	Diphtheria	Croup (not "spasmodic")	Whooping Cough	Typhus	Enteric or Typhoid	Other or Doubtful	Diarrhœa and Dysentery	Cholera	Rheumatic fever	Erysipelas	Pyæmia	Puerperal fever	Ague	Phthisis	Bronchitis, Pneumonia, and Pleurisy	Heart Disease	Injuries	Other Diseases
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
No. 1 or Leominster district	1820	1840	70	22	6	2	0	0	5	9	undr 5	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	6
											5 upws	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	4	1	6
No. 2 or Bodenham	4185	4225	76	46	7	2	1	2	9	25	undr 5	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	2	..	..	6
											5 upws	..	..	..	..	..	..	..	..		..	..	..	..	..	..	..	4	3	7	..	23
No. 3 or Kingsland	4657	4697	128	61	14	4	1	7	10	25	undr 5	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	3	..	..	12
											5 upws	..	..	..	1	..	..	..	1	..	1	..	..	..	..	..	..	6	6	12	..	16
Totals......	10662	10762	274	129	27	8	2	9	24	59	undr 5	..	1	..	..	..	..	..	..	..	4	..	..	..	..	..	..	..	6	..	..	24
											5 upws	..	..	..	1	..	..	..	1	..	1	..	..	..	..	..	..	10	12	23	1	45

THE LEOMINSTER RURAL SANITARY AUTHORITY.

DIVIDED INTO THREE DISTRICTS.

December 31st, 1878.

Gentlemen.—It will be gratifying for you to receive this report inasmuch as it will prove to you (as a Sanitary Authority) that the steady and regular manner in which you have given your time and attention to the carrying out of the different clauses in the Public Health Act, year by year, has been crowned with success, when I tell you your rate of mortality for the whole of your union district has been lowered by such attention this year to 12 per 1,000 against 15·2 per 1,000 for last year. I feel assured none at this Board will regret giving such gratuitous time on meeting with such a happy result. I ask you to compare this 12 per 1,000 death rate with the one for 1876, when it will be seen such stood 17·2 per 1,000, go from the year 1876 to the commencement of the Act being put in force in 1873, 1874, 1875, these years averaged at the rate of 19 and 20 per 1,000. In order that you may thoroughly understand the benefits of the Public Health Act I have divided and apportioned this 129 deaths for the whole of your union into your respective districts as you will perceive. In the Leominster Rural you have 22 deaths for the year, giving a rate of 11·9 per 1,000; in the Bodenham you have 46 deaths giving a minimum rate 10·8 per 1000; in the Kingsland district you have 61 deaths, giving a rate of 13·0 per 1,000. You will naturally ask why should Kingsland district stand at 13 when the others show so much lower a rate? My answer is plain and a fact, that this large parish with a population of over 1.200 has no good system of drainage conducive to health. In the summer time it has nothing to receive the sewage from over 270 houses but two open and festering ditches running close to the roadside which is conducive to swell the columns of infectious disease, and added to which, in many instances, very inferior water is supplied to the occupiers of many of the houses in the parish. In this same district are the parishes also of Luston with a population of 440, Yarpole with a population of 586, Orleton with a population of 591, Aymestry with a population of 775. These respective parishes, together with others in this district, have in many instances a great deficiency of water at times, and now that the Public Health (Water) Act comes in operation on March 25th, 1879, you will have power vested in your Board to compel a supply of pure water being provided for every house within a reasonable distance in every parish in your Union District without such a supply, such house will be rendered uninhabitable and a nuisance and dangerous to public health. I am well aware this question of water supply in your respective parishes has been a question before your Board for some time, and has seemed at different discussions one of almost insurmountable difficulty. This difficulty is now removed on the Act coming into force, and in order that you may have some guide to fall back upon where such water to be supplied, is to be best obtained, I have in my address to you and the Local Government Board quoted, from the Report of the Royal Commission, "to ascertain where water is best to be obtained for Rural Districts, and the quality thereof, to be preferred for domestic purposes."

Of general subjects to bring before you I would mention that out of the seven cases of overcrowding brought before your Board, three have been complied with, leaving four for your Board to take further proceedings to enforce your orders. Also that three public wells containing valuable water for domestic purposes have been protected from pollution. One in the parish of Orleton by this Sanitary Authority, and two at Bircher and Bircher Common bythe parish authorities. These public wells in your respective parishes will, to a certain extent, meet with the requirements of the Act 1879, if we go to the expense of keeping the water from being polluted and preventing waste of same. I know of no greater means of polluting water in wells than the public being allowed to dip filthy buckets and cans in such wells—nine out of ten of these buckets, cans, and tubs, are never free from dirt or filth outside and at the bottom, most are used to convey swill, pigs' wash and other offal to these animals, and after being emptied into the troughs, &c., are set down in a heap of filthy manure until the vessel is again wanted to fetch water, when in its dirty state it is taken to the well, and in this filthy state is dipped into the water to be rinsed out first. This now can be put a stop to, by your Board giving notice, a penalty will be imposed for such pollution, and to meet the demands of the public an iron bucket and chain ought to be provided by your Board and made secure to the side of the well, or what is better the well ought to be built round and covered and a pump put in.

I have to inform your Board the third House-to-House Sanitary Survey will shortly be commenced, when this will be the means of bringing to light where great water deficiency is pre-eminently made visible. Thanking your Board for granting me sick leave which has been the means of restoring my health and returning to my duties,

I am, Gentlemen,
Your obedient Servant,
VAVASOUR SANDFORD,
M.D., L.R.C.P., London, &c.

The Vinery, Hereford.

THE LEDBURY RURAL SANITARY AUTHORITY,

DIVIDED INTO TWO DISTRICTS.

Area: 48,783 Acres, consisting of 22 Parishes.
Population: About 13,102.
Number of Houses, about 2,910.
Aggregate number of people to each honse, about 4.

The Second House-to-House Sanitary Survey is now finished.

Number of Nuisances found to exist this year	130
Consisting of Drains new and repaired	30
Earth Closets and Privies supplied	5
New pans to ditto	14
Overcrowding	6
Pigstyes removed	15
Six new wells supplied	6
Houses disinfected	10
Cesspools cleansed, repaired and bricked, and removal of all offal and other nuisances	44
Births for the year 1878	359
Deaths.	219
Mortality	16·71 per 1,000

Table of Mortality and Sickness in the two Divisions of the Rural Sanitary District of the Ledbury Union for the twelve calendar months ending December 31st, 1878.

NAME OF DISEASE.	Deaths (among all classes) registered as having occurred in the District or Division.		Sickness and Deaths among Paupers.			
	Total Deaths registered as above.		Sickness and Deaths among out-door paupers; and among any paupers who belong to the District or Division, and have been removed into the Workhouse on account of illness; whether the Workhouse be within or without the District or Division.			
			NEW CASES.		DEATHS.	
	Aged under 5.	Aged 5 and upwards.	Aged under 5.	Aged 5 and upwards.	Aged under 5	Aged 5 and upwards.
I.	II.	III.	IV.	V.	VI.	VII.
Small Pox	..	..	..	..	..	..
Measles	..	.	..	.	..	..
Scarlatina	5	2	13	9	4	1
Diphtheria	..	3	4	12	..	1
Croup (not "spasmodic")	2	..	..	..	..	..
Whooping-Cough	..	..	1	8	..	..
"Continued" Fevers: Typhus	..	..	..	.	..	..
"Continued" Fevers: Enteric	..	..	..	..	..	..
"Continued" Fevers: Of other, or doubtful sorts	..	..	2	2	..	..
Diarrhœa and Dysentery	1	..	17	13	..	..
Cholera	..	..	..	..	..	..
Rheumatic Fever	..	..	2	10	..	..
Erysipelas	..	1	..	2	..	1
Pyæmia	..	..	..	..	..	..
Puerperal Fever	..		..	..	..	..
AGUE	..	..	..	..	..	..
PHTHISIS	1	20	..	10	..	4
BRONCHITIS, PNEUMONIA, AND PLEURISY	7	27	40	200	2	10
HEART-DISEASE	1	17		10	..	3
INJURIES	2	5	5	10	1	1
DISEASES NOT NAMED ABOVE	37	88	60	309	5	15
Total	56	163	144	595	12	36

TABLE of DEATHS during the year 1878 in the two Divisions of the Rural Sanitary District of Ledbury Union, classified according to Diseases, Ages, and Localities. and showing also the Population of such Localities, and the Births therein during the year.

Names of Localities.	POPULATION AT ALL AGES.		Registered Births	MORTALITY FROM ALL CAUSES, AT SUBJOINED AGES.							MORTALITY FROM SUBJOINED CAUSES, DISTINGUISHING DEATHS IN PERSONS UNDER FIVE YEARS OF AGE.							Continued fevers.														
	Census 1871.	Estimated to middle of 1878		At all ages.	Under 1 year.	1 and under 5.	5 and under 15	15 and under 25	25 and under 60	60 and upwards		Smallpox	Measles.	Scarlatina	Diphtheria	Croup (not "spasmodic")	Whooping Cough	Typhus	Enteric or Typhoid	Other or Doubtful	Diarrhœa and Dysentery	Cholera	Rheumatic fever	Erysipelas	Pyæmia	Puerperal fever	Ague	Phthisis	Bronchitis, Pneumonia, and Pleurisy	Heart Disease	Injuries	Other Diseases
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
Ledbury District	8901	8951	258	155	26	10	7	5	37	70	undr 5	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	1	6	..	1	26
											5 upws	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	16	23	15	3	60
Yarkhill District	4201	4258	101	64	11	9	5	2	9	28	undr 5	..	..	5	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	11
											5 upws	..	..	2	1	..	..	..	..	..	..	..	..	1	..	..	..	4	4	2	2	28
Totals......	13102	13209	359	219	37	19	12	7	46	98	undr 5	..	..	5	..	2		..	..	..	1	..	..	..	..	..	..	1	7	1	2	37
											5 upws	..	..	2	3	..	..	..	..	..	..	..	..	1	..	..	..	20	27	17	5	88

THE LEDBURY RURAL SANITARY AUTHORITY.

December 31, 1878.

Gentlemen.—My Report upon the Sanitary condition and Health of your District is most favourable compared with other years, and were it not that I had to contend with an outbreak of Scarlet Fever and Diphtheria in the Parishes of Much and Little Marcle entirely traceable to local causes, my Tables of Mortality and Sickness would have shown a very fair return for the year. You will perceive in such tables that an important point is arrived at by your Sanitary Authority in having recorded to you a total absence of any death from Typhus, Typhoid, Enteric, or continued Fevers either in your town or district; a fact that will, I feel assured, give great satisfaction to all when you compare this report with my former ones.

Concerning the outbreak of Scarlet Fever and Diphtheria in the Parishes of Little Marcle and Much Marcle, there can be little doubt that one village communicated the disease to the other although some few miles apart. In my Annual Report to you for 1877, I stated the following facts:—" As regards the outbreak of Diphtheria at Little Marcle, there can be no question this disease was imported from a distance by a child attending the Public Schools in this parish; and the place being low lying, having many stagnant pools, ditches and wells with very inferior water, coupled with badly constructed houses, the germs of this Infectious Disease found a hot-bed peculiarly adapted to bring forth over twenty severe and mild cases." And in my Report to you in September last, I therein stated the Epidemic Scarlet Fever at Much Marcle was traceable to an imported case in the Public Schools, which soon spread, having, for its propagation and distribution one of the most dangerous and sure means of doing so. This school receives on an average over a hundred children daily from different parishes. The school is well built, fairly ventilated, and kept clean and sweet. To it are attached girls' and boys' necessary outdoor accommodation, the two, emptying into one cesspool. On careful examination, and not being able to account for these twenty cases of Fever of a Diphtheric type, the houses in the village being well built, clean, and provided with good sanitary arrangements, I fell back upon the water supplied to the children from a well in the play-ground attached to the schools as the cause of this Epidemic, and on opening this well it was discovered that a direct channel had been formed by the bursting of the cesspool, and that the sewage and excreta flowed continuously into the well, and through the hottest months of an intensely hot summer these poor children had been drinking the water highly charged with their own excreta. I cannot speak too highly of the worthy Vicar, Curate, and all concerned in the village. Measures were at once adopted to sink a fresh well and fill up the old one, and also doing away with the cesspool abomination. These measures were soon crowned with success, the Epidemic disappearing very shortly afterwards.

Before leaving the subject of Mortality and Sickness in your district, I would observe that in the years 1873-4 your deaths amounted to 260, giving a rate of mortality of 19·80 per 1000, or close upon 20 per 1000. For the year 1878 the number of deaths from all causes only amounted to 219, giving a rate of a little over 16 per 1000 for a town and rural district.

Of general subjects to call your attention is the success of the Sewering Scheme now in work for a portion of your town. I believe it meets with general approval, and on completion of the Water Works now in rapid progress for the Supply of Water to the inhabitants of the same portion of your town, and for flushing purposes it will be found to answer every purpose and at a very moderate outlay.

It only remains for me to call your attention to clauses in the new Public Health (Water) Act, 1878, which comes in force March 25th next. Such Act will invest your Sanitary Authority with power to supply one of the greatest deficiencies and obstructions in carrying out the Public Health Act, "That of providing pure and good water in all of your villages for the use of the public."

Sincerely thanking your Board for my sick leave of absence.

I am, Gentlemen,
Your obedient Servant,
VAVASOUR SANDFORD, M.D.

The Vinery, Hereford.

WEOBLEY RURAL SANITARY AUTHORITY,

DIVIDED INTO TWO DISTRICTS WITH TWO INSPECTORS OF NUISANCES.

Area: 49,959 Acres, consisting of 28 Parishes.
Population, about 9,131.
Houses, about 1,149.
Aggregate number of people to each house, 4 and a half.

Number of Nuisances injurious to health found to exist in the two Districts: From second survey, 218.

In the Weobley District		53
Consisting of removal of Privies, altering Drains, removing Dangerous Pigstyes	25	
Privies to Cottages	2	
Overcrowding	1	
Cottages Cleansed, Whitewashed, and Disenfected	14	
	42	
In the Dilwyn District		150
Consisting of general Repairs to Cottages	60	
Removal of Offensive Privies, Cesspools, &c., &c.	40	
Whitewashing and Disinfecting	21	
Cleaning Drains, &c.	10	
In hand	19	
	150	

Births for the whole District	224
Deaths ditto ditto	145
Rate of Mortality ditto, ditto	15·87 per 1,000

Table of Mortality and Sickness in the two Divisions of the Rural Sanitary District of the Weobley Union for the twelve calendar months ending December 31st, 1878.

Name of Disease.	Deaths (among all classes) registered as having occurred in the District or Division.		Sickness and Deaths among Paupers.			
	Total Deaths registered as above.		Sickness and Deaths among out-door paupers; and among any paupers who belong to the District or Division, and have been removed into the Workhouse on account of illness; whether the Workhouse be within or without the District or Division.			
			New Cases.		Deaths.	
	Aged under 5.	Aged 5 and upwards.	Aged under 5.	Aged 5 and upwards.	Aged under 5	Aged 5 and upwards.
I.	II.	III.	IV.	V.	VI.	VII.
Small Pox	..	..	..	..	..	..
Measles	..	..	5	7	..	..
Scarlatina	..	..	3	5	..	..
Diphtheria	4	4	5	4	2	1
Croup (not "spasmodic")	1	..	1	1	..	..
Whooping-Cough	..	..	2	..	..	..
"Continued" Fevers { Typhus	..	..	..	..	..	..
Enteric	1	..	..	3	..	..
Of other, or doubtful sorts	..	..	..	..	..	..
Diarrhœa and Dysentery	2	1	7	6	1	..
Cholera	..	..	..	..	..	..
Rheumatic Fever	..	..	..	..	..	..
Erysipelas	1	1	1	..	1	..
Pyæmia	..	..	..	..	..	..
Puerperal Fever	..	..	..	..	..	..
AGUE	..	..	..	..	..	..
PHTHISIS	..	7	..	3	..	2
BRONCHITIS, PNEUMONIA, AND PLEURISY	3	14	20	26	2	5
HEART-DISEASE	..	24	..	10	..	3
INJURIES	..	4	2	3	..	1
DISEASES NOT NAMED ABOVE	16	62	30	180	3	6
Total	28	117	76	248	9	18

TABLE of DEATHS during the year 1878 in the two Divisions of the Rural Sanitary District of Weobley Union, classified according to Diseases, Ages, and Localities. and showing also the Population of such Localities, and the Births therein during the year.

Names of Localities.	POPULATION AT ALL AGES.		Registered Births	MORTALITY FROM ALL CAUSES, AT SUBJOINED AGES							MORTALITY FROM SUBJOINED CAUSES, DISTINGUISHING DEATHS IN PERSONS UNDER FIVE YEARS OF AGE.																					
																		Continued fevers.														
	Census 1871.	Estimated to middle of 1878		At all ages.	Under 1 year.	1 and under 5.	5 and under 15	15 and under 25	25 and under 60	60 and upwards		Smallpox	Measles.	Scarlatina	Diphtheria	Croup (not "spasmodic")	Whooping Cough	Typhus	Enteric or Typhoid	Other or Doubtful	Diarrhœa and Dysentery	Cholera	Rheumatic fever	Erysipelas	Pyæmia	Puerperal fever	Ague	Phthisis	Bronchitis, Pneumonia, and Pleurisy	Heart Disease	Injuries	Other Diseases
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
Weobley District	5384	5434	113	86	12	7	5	2	17	43	undr 5	..	..	..	4	1	..	..	..	..	3	..	..	..	..	..	..	..	2	..	.	9
											5 upws	..	..	..	4	..	..	..	1	..	..	..	..	..	..	..	..	3	9	12	2	36
Dilwyn District	3647	3697	111	59	8	1	2	3	17	28	undr 5	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	7
											5 upws	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	4	5	12	2	26
Totals......	9031	9131	224	145	20	8	7	5	34	71	undr 5	..	..	..	4	1		..	..	..	3	..	..	1	..	..	..	..	3	..	..	16
											5 upws	..	..	..	4	..	..	..	1	..	..	..	..	1	..	..	..	7	14	24	4	62

THE WEOBLEY RURAL SANITARY AUTHORITY.

December 31, 1878.

Gentlemen,— I regret I cannot present your Authority with so fair a report this year as I did in 1877, your deaths amounting to 145 against 113 for last year, being an increase (from all causes) of 32, many of such increase emanating from preventable disease. This number of deaths gives a rate of mortality of close upon 16 per 1,000 against 12·5 per 1,000 for last year, and with great feelings of regret I have to inform you a heavy percentage of such increase emanates from preventable disease, more particularly Diphtheria. In order to localise these diseases I have been able to divide your Union into two districts, the Weobley and the Dilwyn, as prescribed by the orders and forms of the Local Government Board.

In such forms it will be seen that the rate of mortality varies in each of these two districts within a few fractions only of each other, the rate for Weobley being 15·50 per 1,000, the Dilwyn 16·20, but taking into consideration the Weobley district is almost one-third larger than the Dilwyn the Weobley district consequently cannot be estimated at so high a rate of mortality as the Dilwyn.

It will be further shown in the tables that in the Weobley district Zymotic disease has most prevailed this year, there being eight deaths recorded from Diphtheria alone, one from Typhoid and three from Diarrhœa; whilst in the Dilwyn district you will see the columns of Infectious Disease are void of any entry but two from Erysipelas.

As regards this mortality from Diphtheria it first made its appearance in the parish of Bishopstone, situated, as you are aware, in the district of Weobley, containing about 57 houses, occupied by about 231 people, giving about four people to a house. These houses are (if anything) above the generality of cottage property in the county as far as structure and Sanitary arrangements are concerned. In this village is a Parish School receiving about from 60 to 70 children from this and other parishes; from one of these, two children attended who, in the early part of the year, had very bad throats, they were residing near a stagnant pond which received all the sewage of a large house and farmyard, and there can be little doubt they brought the infection into the School, and the schoolroom not being very well ventilated, this was the means of directly causing about three and twenty cases of Diphtheria in this one parish, resulting in four deaths. In the parish of Norton Canon another death is recorded, the cause of which is ascribed to direct contamination whilst in a railway carriage. Another case emanates from residing on a badly drained common. Two more deaths are set down to this fearful disease in a house in the parish of Almeley, where no Sanitary deficiencies were stated to exist. I need not add that when the Epidemic at Bishopstone was pronounced to be Diphtheria everything was done that could be thought of to arrest its progress, but much valuable time was lost before it was diagnosed, as that disease, and many were treated for Tonsillitis or Ulcerated Sore Throat by a non-legally qualified person. As regards the case of Typhoid recorded in the before mentioned tables of deaths, at a place called Upperton, in the parish of Yazor, there can be no doubt this was due to an open drain in a cellar, communicating direct to a mass of filth and liquid manure. Over the cellar was a children's playroom, the roof of the cellar not being ceiled. Of course, nothing could be better adapted to concentrate the foul and poisonous gases from the large open mouthed drain, and force them through the floor boards into the playroom for the children to perpetually inhale. We come next on such table of deaths to the three deaths recorded as from Diarrhœa. Two of these are Infantile, and I can account for. but the third, which happened to a woman 66 years of age, returned in the Death Register as "Died from Dilatation of Heart some years, and Diarrhœa three days." Now, gentlemen, there is nothing very extraordinary about this certificate, but compare this certificate with the following, (Copied from the *Hereford Times*, dated August 3rd, 1878 :)—

"Serious Outbreak of Sickness at Yarsop.—A serious outbreak of what is known as camp fever occurred at Yarsop last week. It appears that Mrs. Keel, the wife of the foreman carpenter at Foxley was taken ill with violent sickness and diarrhœa on Saturday week, and died on the Tuesday following. She was buried on the Friday, but her husband was stricken with a similar complaint, and was unable to attend her funeral, In the meantime five women who attended his wife in her sickness also fell ill, viz., Mrs. and Miss Powell, Mrs. Jones (carpenter's wife), Mrs. Bridges (mason's wife), the shepherd's wife, and a relation of Mrs. Keel's, the latter going to Hereford and being taken ill there. The surgeon who attended Keel, being of opinion that he could not recover at his own house, advised his removal, and he was taken to a house in Mansell (not far from the school). Thomas Webb, fencer, of Moorhampton, who waited upon Keel on Saturday night, returned home, and was taken ill ; William Woodhouse, carpenter, of Moorhampton, waited upon Keel on Sunday night, returned home and fell ill, and on the next morning (last Monday) an apprentice at Jones's fell ill with a similar complaint. Great alarm was felt during the week by the inhabitants, who were afraid that the sickness was English cholera, but their fears have since been allayed by the surgeon who has attended the sufferers, and who has pronounced it to be sickness similar to that which soldiers have suffered from in camps. The outbreak is generally attributed to the smell from some tubs of stale pig's-wash on Keel's premises. Since the persons whose names we have given have been ill, we have been informed that seven other cases have occurred, viz., Ann Butler, her daughter Mary Butler, and Charles Butler, of King's Pyon, Charles Griffiths, of Moorhampton, and Samuel Verrill and Charles Reece, of Mansell Lacey, having caught the infection. Mrs. Butler is supposed to have caught it by going to Keel's house. Verrill, Griffiths, and Reece, had also been to the same place. We understand that a number of cats, all differently named, had been kept in the house where the disease is supposed to have originated, but whether these animals had anything to do with the spread of the contagion it is impossible for us to say."

This statement, gentlemen, is (with the exception of the name of the fever,) virtually true—and added to this number of victims—I became one, by visiting these premises, not being informed by any one of the serious nature of this disease. I at once instituted an inquiry, having brought the matter before your Board—the result being, after hearing the evidence of *three medical men*, who each had been attending some of these cases, one pronouncing it to be "Malignant Diarrhœa;" another pronouncing his cases to be "English Cholera;" the third postively declaring his cases to be "Enteric Fever" *with well developed symptoms*. The result of this fearfully conflicting medical evidence was, that I was instructed to make my official Report upon the case, which I now copy for your perusal:—

"Hereford, Sept. 29th, 1878.

"Gentlemen,—In consequence of my having been laid up for the last two months with a severe attack of blood poison and fever, contracted whilst carrying out my duties at Yarsop, in investigating an epidemic there, I have been prevented from furnishing you with my Report for the September quarter until to.day. I regret further to state I am unable to be at your Board to-day from the same illness, with more serious symptoms following such blood poison, totally incapacitating me (I fear, for a short time) from carrying out my responsible duties, without a little rest (mind and body).

However ill, I will endeavour to furnish you with a report of last quarter's work, and beg to say your deaths for such quarter have increased 6 against last quarter—being now 36 against 30—the causes registered being 2 from Diphtheria, 1 from Diarrhœa, 1 from Erysipelas, 4 from Phthisis, 2 from Pneumonia or Inflammation of the Lungs, 1 from Bronchitis, 7 from Heart Disease, 1 from accident, and 16 from Non-Zymotic Disease. Of prevailing illness within your Union radius, there is nothing to mention but the two cases of Diphtheria, which were accounted to your Board, and the Epidemic of Yarsop which, after the conflicting evidence of the medical gentlemen, furnished before your Board in August last, as to what the epidemic was, I must leave your Board and the public to form your own opinions.

I *officially* and *boldly* pronounce it *Blood Poison*, assuming the Enteric and Typhoid type—the cause of *such poison* being found, and originating from a large quantity of decomposing animal and vegetable matter, placed in hog tubs—these tubs being placed within four feet of the living room window where the epidemic broke out: and over these tubs a tiled covering, thus condensing the heat of (at that time) a tropical sun, thereby causing this horribly offensive stuff to work and ferment, and from such fermentation to give off most deadly gases and living germs of disease. These gases and germs being driven through the aforesaid window found a resting place in rooms, fearfully dirty and in some with animals' excreta, dirty walls and badly ventilated rooms, and independent of this a pig kept in a filthy state close to and *adjoining* the said pig tubs. Can you wonder, gentlemen, with these facts before you, that nearly every soul that entered this house fell victims to this poison? The house was literally charged with it. It was not the *water* or the *drainage*—they are *passable*—or the *cesspool*, it being some distance away from either well or drain communicating with the house. It was poison made by the hand of man, and for economy's sake allowed to remain until it became deadly, and to which I owe a long and severe illness for want of information of such poison having been in existence.

I am, gentlemen, yours obediently,
H. VAVASOUR SANDFORD, M.D.,

These are the principal matters to lay before you, and it only remains for me to mention that your authority will on March 25th next, be given powers to meet a great question existing in this county—"That of the Supply of Pure Water to People residing in houses in Rural Districts," by the coming in force of the Public Health (Water) Act.

Allow me to return my thanks to your Board for granting my sick leave.

I am, gentlemen,
Your obedient servant,
VAVASOUR SANDFORD, M.D., &c.

SANITARY HINTS,

Pure Drinking Water.—Avoid, as far as you can, every water which can even be *suspected* of contamination with the filth from sewers, house drains, privies, cesspools, and the like. See that cisterns and water butts are clean, and especially that the overflow pipes do not open direct into any drain. Water should be clear, colourless, and without smell. Water can only be really tested by a difficult and careful chemical analysis. Drinking-water is the better for being filtered. A costless filter may be thus made:—Take a flower-pot and plug the hole, not too tightly, with a piece of sponge; add a layer of powdered animal charcoal about one inch thick, then the same quantity of clean sand, and on that some coarse gravel. The charcoal should be occasionally re-baked or washed with Condy's Fluid; in epidemics of typhoid fever or cholera, the water should be boiled before filtration.

Drains, Closets, &c.—Flush and, if possible, scrub and cleanse once daily with plenty of water, containing some disinfectant, as crude sulphate of iron, chloride of zinc, carbolic acid, or Cooper's Patent Salts. See that the traps are well charged with water, that they do not allow bad smells to escape in the house, and that the main house drain is ventilated by the rain water pipe, by charcoal atr filters, or otherwise.

Ash and Privy Pits.—Cover, so as to keep them dry, well drained, thoroughly spread over with ashes or dry earth, frequently emptied, sprinkle with a disinfecting powder—(McDougall's or Cooper's)—and be careful that no slops are thrown in. Decaying animal and vegetable refuse are sources of danger, and should be buried or dug into the earth away from houses. Remove all pigs, poultry, and rabbits, to some distance from living rooms.

Ventilation.—Keep rooms and passages sweet by opening doors and windows for admission of air. Fires greatly promote ventilation. Over-crowding is exceedingly dangerous. Whenever possible, 500 cubic feet of air breathing space should be allowed to each individual in any sitting-room, bedroom, or work-room. Gas lights contaminate the air very rapidly. Pure air is less dependent on cubic space than on efficient ventilation, which may be secured by the following simple and economical method:—Raise the lower sash of the window two or three inches, and fill in the opening underneath the bottom rail with a piece of wood; this leaves a corresponding space between the meeting rails in the middle of the window, through which a current of air enters and is directed towards the ceiling, whence it should escape by a valvular opening. The fewer persons and things in a sick-room the better. Beds should be freely exposed to the air during the day, and soiled linen should not be kept waiting for washing in unventilated closets.

CLOTHING, FOOD, &c.—While warmth is kept up, transpiration should be free; in summer and autumn a broad flannel bandage should be worn round the abdomen, and the linen should be constantly changed. The food should be plain, fresh, wholesome, and sufficient; avoiding intemperance in both eating and drinking. Bodily weakness favours cholera, typhus, typhoid and other fever,—therefore, avoid exhaustion, over-fatigue, and fear as much as possible. Milk, rice, meat, soups, potatoes, beans, pea-meal, bacon, entire wheaten bread and cheese are the cheapest nourishing articles of food. One of the most frequent causes of the early death of young children is improper feeding. The proper food of children is breast milk. When the mother and child are both healthy no other food is required for the first six months. When the child is first born no other food is required, and the practice of giving gruel, butter, honey, and castor oil to new-born babes is prejudicial to their health. When the mother has a deficiency of milk, cow's milk is the best substitute. It should be given with a third of warm water and a little sugar. For the first six weeks the child should be suckled every two hours in the day and every three or four hours at night. Gradually as it gets older the intervals of feeding may be prolonged Children should not be fed to keep them quiet but at regular intervals. Mothers should never fall asleep when suckling their babes, as this is one of the most frequent causes of suffocation in bed. A child should not be weaned suddenly, but by degrees, and ought not to have the breast after the ninth month. When the child has cut its front teeth it may have some light food, such as bread, baked finely ground entire wheaten flour, or milk biscuits added to its milk, or "Liebig's Food;"

and once a day, meat broth or beef tea, with bread or biscuits soaked in it; or the yoke of an egg lightly boiled; when it is a year and a half old, some fine chopped meat—but milk should form the principal part of its food. Solid meat and potatoes, fat pork and fish, which form the food of grown-up people, should on no account be given to children.

THE SICK ROOM.—Keep sweet by a small fire and plentiful supply of fresh air, as above described. Remove bed-curtains, window-hangings, and carpets. Sweep rooms daily, and let the floor be frequently rubbed with a damp cloth or dry rubbed, and when necessary chloride of lime or acetic acid sprinkled from time to time on the floor. Keep within reach of the patient a basin charged with disinfectant for him to spit into; and have close at hand a tub or pail of diluted disinfecting fluid, into which should be immediately thrown any article of clothing removed from the patient. Instead of a pocket handkerchief use small pieces of rag, to be immediately burnt after use. A piece of macintosh sheeting placed beneath the sheet or blanket of a bed prevents discharge soaking through, A tea-cup full of green copperas solution, 2lbs. to a gallon, put into the night pan before it is used by the patient renders the discharge harmless. Matters discharged from the body should be received in a vessel containing active disinfectants, as about half a pint of either of the following solutions, namely:—Of 2lbs. of sulphate of iron in a gallon of water; one quart of chloride of zinc to three quarts of water; four fluid ounces of carbolic acid (Calvert's No. 5) to a gallon of water. Glasses, cups, and other utensils of the sick room should be cleansed before they are used by other persons Hang, outside door of room, a sheet or old counterpane, and keep it moistened with some disinfecting solution.

INFECTED CLOTHING AND BEDDING.—Soiled linen, bedding, and such woollen articles as admit of washing, on being removed from the patient should be plunged into boiling water before they are taken from the room, and, in addition, for an hour or two, into a tub of solution of four fluid ounces of carbolic acid (Calvert's No. 5) to a gallon of water; after this they can be boiled and washed. Cloth clothes, mattresses, beds, pillows, &c. (in the absence of a proper public disinfecting establishment, which should be so constructed that its temperature can be well regulated and maintained at from 240 dg. to 250 dg. Fahr. for four or five hours), should be disinfected by smoking with brimstone, exposure in the open air, to the sun, if possible, or if raining in front of a large fire. Washing and lime-whiting of premises should be attended to periodically.

The Patient.—Separate the sick person from the healthy as soon as possible. In cases of scarlet fever, on the seventh and eighth day, anoint the surface of the body twice a day with camphorated lard or palm oil, or wash with diluted Condy's Liquid. When the patient is sufficiently strong let him take a warm bath, and afterwards be well washed with carbolic acid-soap and water. During a week or ten days from this time he may be kept apart, repeating every two or three days the disinfecting ablutions; after which time he can, with safety, mix again with his family. Scarlet Fever and Small Pox seldom spread beyond the sick-room when separation and disinfection have been properly used. Whenever children have sore throats or an eruption on the skin, they should be separated from the rest of the family until they have had medical advice or those symptoms have disappeared, Measles and Whooping-cough are contagious, and cases should be more carefully isolated and nursed than is usually done. In the event of death early burial is very desirable Powdered charcoal, 2 lbs, Cooper's Patent Salts, or good Carbolate Powder, or sawdust nearly saturated with a solution of chloride or sulphate of zinc, placed in the coffin retards decomposition and putrefaction, or takes away offensive smells by absorbing noxious gases.

Nurses and Attendants.—Woollen dresses are to be avoided, and preference given to washing materials. Prevent contact, as much as possible, between attendants and inmates of the house. After handling the sick or things connected with them, let the nurse be careful immediately to wash her hands in diluted Condy's liquid, or with carbolic acid-soap.

Disinfectants.—For *Nuisance Prevention* as detected by the nose test, those most generally used are Chloride of Lime, Cooper's Salts, Condy's Fluid, Burnett's Liquid, Chloralum, Carbolic Acid, and its compounds. Chloride of Lime and Chlorine require care and experience in management; when used too freely in inhabited rooms, they give rise to irritation of the lungs and air passages. Burnet's Fluid and Carbolic Acid are most efficacious but are poisonous, and the latter possesses a very strong smell, which to many persons is extremely offensive. Ten pounds of sulphate of iron, five gallons of water, and half a pint of common carbolic acid form a good and cheap disinfectant for drain. Iodine, volatilized on a heated surface, is an excellent disinfectant, but is expensive. Carbolic Acid, Chlorozone, or Condy's Liquid improve the air when diffused by means of a large brush, a scent spray, or the hydronette syringe with rose. For *Infection Prevention*,—should be thorough—not diluted, applied in considerable strength,—while the room is occupied by the living it is impossible to use volatile or aerial disinfectants in such quantity as to be of real service. When the room is vacated, to disinfect thoroughly, close the windows, stop up the chimney and every aperture and outlet from the room, and use sulphur in the proportion of 1½ oz. for every 100 cubic feet of space. The sulphur may be safely burnt in a shallow pipkin or coarse earthenware saucer containing some live coals or coke; the saucer should be supported on a pair of tongs laid across a pail of water, so that in case of accident the burning sulphur may fall into the water and do no injury. The room should be closed for twelve hours—then the wall papers should be removed, stripped off, and burnt; the walls, ceiling, floor, painted parts of the room and articles of furniture washed with solution of carbolic acid, and the ceilings and walls lime-washed; the room should be unoccupied and freely open to the external air for a fortnight, if possible, for plenty of fresh air is the truest, best, and cheapest disinfectant.

Vaccination.—Every child should be vaccinated before the third month; if delayed beyond that period, it may increase the irritation of teething. Skin rashes are often erroneously said to be caused by vaccination. All persons should be re-vaccinated after eight years of age,—and when Small Pox prevails in a family or neighbourhood.

Clergymen, medical practitioners, Scriptures readers, and other persons interested in sanitary reform living in the district, are invited to inform the Medical Officer of Health, and the Sanitary Inspectors, of any nuisances which they discover in their neighbourhood—such communications to be considered strictly confidential. Every ratepayer has a right of complaint, and it is only by such co-operation that Sanitary Officers have a power of remedying nuisances and of checking the ravages of epidemic disease.